CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.07/KRIDL/WMM/Gradation/2014-15 30.06.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.

Reference : AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014

Date of Testing : 30.06.2014

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **25600**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	995	995	3.9	96.1	95-100
22.4	5525	6520	25.5	74.5	60-80
11.2	5600	12120	47.3	52.7	40-60
4.75	4010	16130	63.0	37.0	25-40
2.36	3990	20120	78.6	21.4	15-30
0.600	2585	22705	88.7	11.3	8-22
0.075	2610	25315	98.9	1.1	0-8

Note:

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Job No.: CTCE/BBMP/W.No.07/KRIDL/WMM/AIV/2014-15 30.06.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.
Reference	AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	30.06.2014

Sl No.	Details	Trial No.			Average
		1	2	3	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	82.5	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	298.5	302	
4	Aggregate Impact value = percent fines	21.32	21.65	20.94	
	100* (W_2/W_1)%				**21.30**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.
Reference	AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	30.06.2014

Result : Flakiness Index = **12.29%**

Elongation Index = **13.32%**

Result : Combined Flakiness & Elongation index 25.61%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.

Reference : AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014

Date of Testing : 30.06.2014

Material : WMM

Sample Location : WMM Mix Plant

As per MORTH Table 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	22.60	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CTCE/BBMP/W.No.07/KRIDL/QB/2014-15 14.07.2014

TEST REPORT

Client	:	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	:	Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.
Reference	:	AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014
Source of location	:	Hot mix Plant, Bangalore
Date of testing	:	14.07.2014

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl. No	Description	Test Result	Requirement as per IS:73:2006
1	Penetration at 25 ^{0}C, 1/10 mm	85	80 to 100
2	Softening point, ^{0}C	51	Min. 40
3	Ductility at 27^{0}C, cm	100 >	Min. 75
4	Flash Point, ^{0}C	380	Min. 220

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Job No.: CTCE/BBMP/W.No.07/KRIDL/SDBC/Bit/2014-15 23.07.2014

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 164

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.
REFERENCE	AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014
SAMPLE I/D	Roads in Kallappa, Munagurappa and Hoysala Layout Ward No.07, BBMP, Bangalore.
DATE OF TESTING	23.07.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473	479.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	27	20.50
7. Bitumen content in %	5.40	4.10
8. Average	**4.75**	

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BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements of Roads at Ward No.07, Byatarayanapura in Kallappa, Munagurappa and Hoysala Layout, BBMP, Bangalore.
REFERENCE	AEE/(KOD.SUB.DIV)/67/A/2014-15 Dated: 26.06.2014
SAMPLE I/D	Roads in Kallappa, Munagurappa and Hoysala Layout Ward No.07, BBMP, Bangalore.
DATE OF TESTING	23.07.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.31	5.56	5.56	94.44	90-100
4.75	262.1	55.41	60.97	39.03	35-51
2.36	56.43	11.93	72.90	27.10	24-39
1.18	38.75	8.19	81.10	18.90	15-30
0.3	26.95	5.70	86.79	13.21	9-19
0.075	27.12	5.73	92.53	7.47	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	36.12	7.53	7.53	92.47	90-100
4.75	262.1	54.66	62.19	37.81	35-51
2.36	52.63	10.98	73.17	26.83	24-39
1.18	36.52	7.62	80.79	19.21	15-30
0.3	30.79	6.42	87.21	12.79	9-19
0.075	27.55	5.75	92.95	7.05	3-8

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